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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Jeong-II Seo

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EXAMINER

SAUNDERS JR, JOSEPH

ART UNIT

PAPER NUMBER

2614

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/531,635	Applicant(s) SEO ET AL.	
	Examiner Joseph Saunders	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 27, 2009 has been entered. Claims 1 – 18 are currently pending and considered below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 – 4 and 10 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over MPEG-21 Overview v.4 in view of Trivi et al. (Rendering MPEG-4 AABIFS Content Through A Low –Level Cross- Platform 3D Audio API), hereinafter Trivi, and Krueger et al. (US 2002/0013812 A1), hereinafter Krueger.

Claim 1: MPEG-21 Overview v.4 discloses an apparatus for adapting an audio signal (MPEG-21) comprising: an audio usage environment information management means for collecting, describing and managing (The Digital Item Declaration Model describes a

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set of abstract terms and concepts to form a useful model for defining Digital Items.

Within this model, a Digital Item is the digital representation of "a work", and as such, it is the thing that is acted upon (managed, described, exchanged, collected, etc.) within the model, 6.2 page 8) audio usage environment information (Natural Environment Characteristics: Description tools that specify the location and time of a User in a given environment, as well as audio-visual characteristics of the natural environment, which may include auditory noise levels and illumination properties, 6.7 page 15) related to consuming the audio signal (diverse sets of Users each with terminal(s), 6.7 page 14); and an audio adaptation means for adapting the audio signal suitably to the audio usage environment information, (Resource Adaptation Engine, Figure 4 page 15) wherein the audio usage environment information includes user characteristics information that describes sound field preference of the user for the audio signal (User Characteristics: Description tools that specify the characteristics of a User, including preferences to particular media resources, preferences regarding the presentation of media resources, and the mobility characteristics of a User. Additionally, description tools to support the accessibility of Digital Items to various users, including those with audio-visual impairments, are being considered, 6.7 page 15. A *resource* is an individually identifiable asset such as a video or audio clip, an image, or a textual asset, 6.2.11 page 9)

MPEG-21 Overview v.4 does not disclose wherein the audio adaptation means adapts the audio signal by changing sound field characteristics of the audio signal based on impulse response preference information of the user, wherein the user

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characteristics information includes the impulse response preference information using an impulse response to describe the sound field preference of the audio signal.

Trivi discloses in an MPEG-4 terminal supporting AABIFS content allowing for the description and rendering of virtual audio environments (Abstract). Trivi teaches that the environmental model can take a perceptual approach where perceptual parameters define a set of environmental parameters that describe how the listener will perceive the interaction between the room and the sound source. Trivi further teaches perceptual parameters are used to alter a generic impulse response model or impulse response (Figure 1). The perceptual parameters defining the impulse response further include decay times and energy or amplitude levels. (2.2.3 Environmental model: perceptual approach). Therefore given the teachings of Trivi of defining perceptual parameters for an MPEG-4 terminal to allow for description and rendering of virtual audio environments, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate these teachings in the MPEG-21 standard to allow for a virtual audio environment to be described and rendered based on impulse response according to user preference, since MPEG-21 calls for a way of describing user preferences regarding the presentation of media resources and Trivi's teachings provides such a solution.

MPEG-21 Overview v.4 and Trivi do not disclose wherein the impulse response preference information further includes sampling frequency preference information, bits per sample preference information, and number of channels preference information of the impulse response.

Krueger discloses a method of modifying audio files received and transmitted over a computer network ([0003]). Krueger explains, "People commonly experience long, frustrating delays when browsing the Web, such as when one's computer is establishing contact with a Web server or downloading a requested file. There are many possible causes of latency, including heavy communications traffic on the Internet, slow response time of Web servers, and the large size of some files that are downloaded. Latency tends to be particularly apparent when downloading audio files, for example, which tend to be large in comparison to other file types. It is desirable, therefore, to provide a technique for reducing certain latencies on the Web, such as those associated with audio files," [0006]. Krueger teaches reducing latency by transcoding the audio data, "These transcoding methods may include, for example, 1) reducing the number of channels, 2) reducing the sample rate, and 3) compression. The transcoded audio data is then transmitted to the client computer system," [0009]. Krueger further teaches similar to the Description Tools and Resource Adaptation Engine, "Prior to transmitting a file to the client, the proxy transform module 72 provides the client 1 with any information regarding the level of transcoding to be performed (if any) which may be required by the client 1 and which is not implicit in the transcoded file itself," [0049].

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include in the invention of MPEG-21 Overview v.4 and Trivi sampling frequency preference information, bits per sample preference information, and number of channels preference information used to transcode the audio data as taught

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by Krueger using the Description Tools and Resource Adaptation Engine taught by MPEG-21 Overview v.4 and Trivi, thereby reducing latency and reducing long frustrating delays when downloading audio (Krueger [0006]).

Claim 2: MPEG-21 Overview v.4, Trivi, and Krueger disclose the apparatus as recited in claim 1, wherein the audio adaptation means transmits an adapted audio signal to a user terminal (Resource Adaptation Engine, Figure 4 page 15 of MPEG-21 Overview v.4, and Figures 1 and 5 of Krueger).

Claim 3: MPEG-21 Overview v.4, Trivi, and Krueger disclose the apparatus as recited in claim 2, wherein characteristics of the impulse response are obtained from a Uniform Resource Identifier (URI) address that identifies the impulse response (Digital Items and their parts within the MPEG-21 Framework are identified by encapsulating Uniform Resource Identifiers into the Identification DS. A Uniform Resource Identifier (URI) is a compact string of characters for identifying an abstract or physical resource, where a resource is defined as "anything that has identity". The requirement that an MPEG-21 Digital Item Identifier be a URI is also consistent with the statement that the MPEG-21 identifier may be a Uniform Resource Locator (URL). The term URL refers to a specific subset of URI that is in use today as pointers to information on the Internet; it allows for long-term to short-term persistence depending on the business case, 6.3 page 12).

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Claim 4: MPEG-21 Overview v.4 , Trivi, and Krueger disclose the apparatus as recited in claim 1, wherein the user characteristics information includes perceptual parameters preference information describing the sound field preference of the user by perceptual parameters (User Characteristics: Description tools that specify the characteristics of a User, including preferences to particular media resources, preferences regarding the presentation of media resources, and the mobility characteristics of a User. Additionally, description tools to support the accessibility of Digital Items to various users, including those with audio-visual impairments, are being considered, 6.7 page 15), and the audio adaptation means adapts the audio signal and transmits the adapted audio signal to the user terminal by changing the sound field characteristics of the audio signal based on the perceptual parameters preference information (A *resource* is an individually identifiable asset such as a video or audio clip, an image, or a textual asset, 6.2.11 page 9), and the audio adaptation means adapts the audio signal and transmits the adapted audio signal to the user terminal by changing the sound field characteristics of the audio signal based on the preference for the perceptual parameters (Resource Adaptation Engine, 6.7 and Figure 4 pages 14 – 15).

Claims 10 – 13 are substantially similar in scope to claims 1 – 4 respectfully, and therefore are rejected using the same rationale.

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4. Claims 5 – 9 and 14 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over MPEG-21 Overview v.4, Trivi, and Krueger in view of Synthetic Audio Tools in MPEG-4 Standard.

Claims 5 – 9: MPEG-21 Overview v.4, Trivi, and Krueger disclose the apparatus as recited in claim 4, but do not disclose wherein the perceptual parameters preference information includes information describing direct sound, energy of early room effect, and relative early energy at low and high frequency, wherein the perceptual parameters preference information includes energy of later room effect and relative early decay time, wherein the perceptual parameters preference information includes energy of early room effect related to the direct sound and late decay time, wherein the perceptual parameters preference information includes relative decay time at a low and high frequency and a reference distance that defines the perceptual parameters, wherein the perceptual parameters preference information includes limitation of a low and high frequency and time limitation.

Synthetic Audio Tools in MPEG-4 Standard explicitly teaches the claimed perceptual parameters originally taught by Trivi (Table 3 and “Perceptual Approach for Creating Room Acoustic Effects” pages 14 – 15). Therefore given that Trivi introduced perceptual parameters but did not define them it would have been obvious to one of ordinary skill in the art to incorporate the explicit definitions as disclosed by Synthetic Audio Tools in MPEG-4 Standard for the perceptual parameters in the invention of

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MPEG-21 Overview v.4, Trivi, and Krueger since the parameters are part of the MPEG-4 standard.

Claims 14 – 18 are substantially similar in scope to claims 5 – 9 respectfully, and therefore are rejected using the same rationale.

Response to Arguments

5. Applicant's arguments with respect to claims 1 – 18 have been considered but are moot in view of the new ground(s) of rejection in view of Krueger as referenced above.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Saunders whose telephone number is (571) 270-1063. The examiner can normally be reached on Monday - Thursday, 9:00 a.m. - 4:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (571) 272-7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 2614

/CURTIS KUNTZ/

Supervisory Patent Examiner, Art Unit 2614